

ZAPISOCHNYI, I.P. [Zapischnyi, I.P.]; SHYMON, L.L. [Shymon, L.L.]

Effective excitation cross sections of resonance levels of
sodium. Ukr. fiz. zhur. 9 no.10:1143-1145 0 '64
(MIRA 18:1)

1. Uzhgorodskiy gosudarstvennyy universitet.

~~L 13006-66~~ EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG
ACC NR: AP6001635 SOURCE CODE: UR/0051/65/019/005/0864/0870

AUTHOR: Zapesochnyy, I. P.; Shimon, L. L.; Soshnikov, A. K.

ORG: none

TITLE: Effective excitation cross sections for atoms of alkali metals during collisions with slow electrons. II. Potassium

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 864-870

TOPIC TAGS: excitation cross section, potassium, alkali metal, ~~atomic physics~~, resonance line, *electron*

ABSTRACT: The slow-electron excitation cross sections for 28 lines in the principal and subordinate series of the potassium atom were experimentally measured. The spectral lines were photoelectrically recorded using the most nearly monoenergetic electron beam possible at low current densities. The experimental conditions are described. Control experiments confirmed the linearity of the relationship between intensities for all lines up to vapor pressures and beam currents greater than those used for the measurements. Curves are given for the excitation cross section on the

Card 1/2

UDC: 539.186.2

L 13006-66

ACC NR: AP6001635

resonance line at 765 Å, as well as for the components of the second doublet in the principal series at 4044 and 4047 Å. Absolute functions are given for excitation of lines in the principal, sharp and diffuse series. Curves are given showing the excitation cross sections for the lines as a function of the principal quantum number. The results are used for evaluating the part played by successive transitions. It is found that the contribution made by successive transitions to S-levels (starting at $n=7$) is small. However, the contribution of successive transitions for the lower 6S level is about 15%. These transitions play an extremely important part at the 5S level. Successive transitions are responsible for approximately twice the fraction of the population at this level caused by direct excitation by electrons from the normal state of the atom. The contribution made by successive transitions to D-levels from the levels of the principal series, as well as from F-levels, is small (less than 10%) with the exception of the 3D-level (which is the final level for all lines of the fundamental series). It was impossible to evaluate the cross sections for D-levels due to lack of data for lines of the fundamental series. Orig. art. has: 6 figures, 1 table.

SUB CODL: 20/ SUBM DATE: 28Sep64/ ORIG REF: 009/ OTH REF: 000

jrn

Card 2/2

L 11621-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG/AT
ACC NR: AP5025290 SOURCE CODE: UR/0051/65/019/004/0480/0486

AUTHOR: Zapesochnyy, I. P.; Shimon, L. L.

ORG: none

TITLE: Effective excitation cross sections of alkali metal atoms in collisions with slow
electrons. Part 1: Sodium 21, 44, 55

SOURCE: Optika i spektroskopiya, v. 19, no. 4, 1965, 480-486

TOPIC TAGS: sodium, excitation cross section, electron collision, spectral line

ABSTRACT: 21, 71, 1, 45 The authors' laboratory has undertaken systematic studies aimed at determining the excitation cross sections of spectral lines of alkali metal atoms. The article gives results of experiments on sodium vapor, carried out under conditions of single collisions and a linear dependence of line intensities on vapor pressure and on the current density of the beam electrons. The vapor pressure did not exceed 4.5×10^{-4} mm Hg, and the electron current density was not more than 4.7×10^{-4} A/cm². The excitation cross sections of 19 doublets of the principal and subordinate series of the sodium atom, and also 10 ionic lines. A regular pattern was established in the behavior of the cross sections of lines of subordinate series relative to the principal quantum number of the upper level. The role of certain

Card 1/2

UDC: 539.186.2:546.33

L 14621-66
ACC NR: AP5025290

cascade transitions, cross sections of resonance levels, and various levels of the principal and sharp series is evaluated. Orig. art. has: 6 figures, 2 tables, and 2 formulas.

SUB CODE: 07, 20 / SUBM DATE: 10Jul64 / ORIG REF: 011 / OTH REF: 005

TS
Card 2/2

L 11103-66 EWT(l)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/WW/JG/CG/AT

ACC NR: AP6004089

SOURCE CODE: UR/0020/66/166/002/0320/0323

AUTHOR: Zapesochnyy, I. P.; Shimon, L. L.

ORG: Uzhgorod State University (Uzhgorodskiy gosudarstvennyy universitet)

TITLE: Effective cross sections for excitation of resonance doublets in cesium and rubidium

SOURCE: AN SSSR. Doklady, v. 166, no. 2, 1966, 320-323

TOPIC TAGS: cesium, rubidium, excitation cross section, resonance line

ABSTRACT: The authors describe a method for studying the effective cross sections of resonance lines in atoms and determine the absolute cross sections for excitation of resonance doublets in cesium and rubidium by slow electrons. The proposed method is based on the law for damping of monochromatic radiation

$$I_l = I_{l0} e^{-\kappa_l l}, \quad (1)$$

where I_l is the intensity of the undamped luminous flux; I_{l0} is the intensity of the luminous flux after passing through a distance l in the absorbent gas; $\kappa_l = \sigma_l n_l$.

Card 1/2

UDC: 539.186.2:546.33

L 14103-66

ACC NR: AP6004089

is the damping factor which is the product of the effective cross section for absorption of a photon σ_v and concentration of normal atoms n_0 . The logarithmic form of this expression shows that the relationship between $\log I_v$ and l is graphically a straight line. The intersection of this line with the vertical axis gives the undamped luminous flux corresponding to $l = 0$. Thus the problem actually reduces to plotting the rectilinear graph $\log I = f(l)$ in absolute units of luminous flux, and this is proportional to the effective cross section for excitation of the observed line. A description is given of the equipment used for obtaining the experimental data. The apparent cross sections for excitation of resonance lines in cesium and rubidium were measured for various thicknesses l of an absorbent layer of normal atoms. The experimental points lie on the straight lines predicted by the logarithmic formula

$$\log I_v = \log I_{v0} - \kappa_v l.$$

Curves are given showing the absolute cross sections for excitation of resonance lines in these atoms as functions of the electron energy. An equation is derived for determining the effective cross sections of the resonance levels. Comparison of the results with data in the literature shows satisfactory agreement. Orig. art. has: 4 figures, 3 formulas.

SUB CODE: 20/ SUBM DATE: 20May65/ ORIG REF: 008/ OTH REF: 004

Card 2/2

L 36438-66 EWT(1) IJP(c) AT

ACC NR: AP6015418

SOURCE CODE: UR/0051/66/020/005/0753/0759

AUTHOR: Zapozhnyy, I. P.; Shimon, L. L.

ORG: none

TITLE: Effective excitation cross sections of alkali metal atoms in collisions with slow electrons. Part 4: Cesium

SOURCE: Optika i spektroskopiya, v. 20, no. 5, 1966, 753-759

TOPIC TAGS: excitation cross section, cesium, electron collision, atomic spectrum, resonance line

ABSTRACT: The excitation cross sections of 43 lines of the principal, subordinate, and fundamental series of the cesium atom and also 17 ionic lines were determined experimentally at vapor pressures $p = 2 \times 10^{-4}$ and 6×10^{-4} mm Hg and an electron density $j < 10^{-4}$ A/cm² (corresponding electron-beam intensity $i = 22 \mu\text{A}$). In the principal series, the second and fifth doublets were measured directly, and a rough estimate of the cross sections of resonance lines was made. From these data, conclusions were drawn concerning the relative intensities within the doublets. In the subordinate and fundamental series, the monotonic decrease of the cross sections of the lines permits one to correlate the cross sections with the principal quantum number of the upper level. The role of cascade transitions in the various levels of the atom is

UDC: 539.186.2

Card 1/2

L 36438-66

ACC NR: AP6015418

discussed, and the cross sections of certain levels are given. Orig. art. has: 7 figures, 2 tables, and 1 formula.

SUB CODE: 07/ SUBM DATE: 29Jan65/ ORIG REF: 006/ OTH REF: 001

Card

2/2 *js*

BULGARIA

SHINDAROV, D., VASSILEVA, V. [Affiliation not given]

"Cultivation of Sheep Abortion Virus in Tissue Culture of Tortoise Lungs
(Testude graeca)"

Sofia, Doklady Bolgarskoy Akademii Nauk, Vol 19, No 3, 1966, pp 237-240

Abstract: [English article] D. Shindarov and Z. Savov (Compt. rend. Acad. bulg. Sci., 17, 1964, No 10, 981) reported earlier on the cultivation of the sheep abortion virus in tissue culture of cold-blooded animals (tortoise kidney epithelium). The present paper contains the results of studies on the reproduction of the sheep abortion virus in the tissue culture of the lungs of the same animal. Results of the experiments, described in considerable detail, indicate that 1) the sheep abortion virus can multiply itself in a primary monolayer tissue culture of the lungs of a cold-blooded animal (Testude graeca); 2) virus multiplication in tissue culture causes a cytopathic effect primarily of a focal character; 3) the maximum in the virus accumulation during its multiplication in the culture is about the 6th to 7th day after inoculation. There are 3 Bulgarian and 1 Western reference. (Manuscript received, 30 Nov 65.)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549510015-

BULGARIA

SHINDAROV, L., VASSILEVA, V., Department of Microbiology and Virology,
Post-Graduate Medical Institute, Sofia

"Cultivation of the Virus of the Variolovaccine in Tissue Culture of
Pancreas of Testudo Graeca"

Sofia, Doklady Bolgarskoy Akademii Nauk, Vol 19, No 7, 1966, pp 657-660

Abstract: [English article] The authors reported earlier (Zbl. Bakteriolog. I Orig. 187, 1962, 295) on the cultivation of the virus of the variolovaccine in tissue of cold blooded animals. The present paper describes in considerable details the cultivation of the virus of the variolovaccine in tissue culture from pancreas of land tortoise (testudo graeca). It was established that the viruses of herpes simplex, of abortion in sheep, and of vesicular stomatitis are multiplied with a cytopathic effect in the same kind of tissue culture. There are 1 Soviet and 5 Western references. (Manuscript received, 22 Mar 66.)

L 01312-07 DT(1)/DT(m)/MNT(1)/MNT(1) LIT(1) REW/AL/07

ACC NR: AP6018435

SOURCE CODE: UR/0051/66/020/006/0944/0949

AUTHOR: Zapesochnyy, I. P.; Shimon, L. L.

ORG: none

TITLE: Effective excitation cross sections of alkali metals in collisions with slow electrons 2/

SOURCE: Optika i spektroskopiya, v. 20, no. 6, 1966, 944-949

TOPIC TAGS: excitation cross section, rubidium, resonance line, alkali metal, electron collision

ABSTRACT: The cross sections of all lines of the subordinate series as well as of the lines of the principal series starting with the third term were measured at vapor pressures of $2 \cdot 10^{-4}$ and $6 \cdot 10^{-4}$ mm Hg. The electron current density in the interval was $(5-8) \cdot 10^{-4}$ amp/cm². The absolute cross sections were determined at an electron energy level of 9.5 eV; the relation between the excitation cross sections and electron speed was plotted on the basis of relative excitation functions of previously obtained lines. To eliminate possible system errors, the absolute measurements were performed with several coils of different geometry, at different vapor pressures, at different temperatures (1673 and 1873°K) of the ribbon-filament lamps, and with different combinations of light filters. The scattering of individual measurements was ~10%; the error

UDC: 539.186.2:546 35

Card 1/2

L 01312-7

ACC NR: AP6018435

inherent in the method was ~30-35%. The excitation cross sections of 31 lines of the principal and subordinate series of the Rb atom, as well as of 15 ionic lines were determined experimentally. In addition, the apparent cross sections of the resonance lines of Rb were estimated at a vapor pressure of $5.7 \cdot 10^{-6}$ mm Hg. The apparent section of the resonance doublet was estimated at $3.82 \cdot 10^{-15}$ cm². The role of the successive transitions in the settling of the excited levels could not be conclusively determined. Preliminary calculations indicate that the contribution of the successive transitions to the S-levels is insignificant; on the 7S level it amounts to 7-8%. At the 6S level it appears to reach 20-25%. At peak excitation, the following cross section values for several levels were obtained: $Q_{7S} = 34 \cdot 10^{-18}$, $Q_{8S} = 10 \cdot 10^{-18}$, $Q_{9S} = 3.6 \cdot 10^{-18}$, and $Q_{10S} = 2.4 \cdot 10^{-18}$ cm². Orig. art. has: 5 figures, 2 tables.

SUB CODE: 20/

SUBM DATE: 07Dec64/

ORIG REF: 005

Card 2/2

L 06250-47
ACC NR: AF6031952

SCOURCE CODE: UR/0051/66/C21/003/0251/0266

AUTHOR: Zanosochnyy, I. P.; Shimon, L. L.

ORG: none

TITLE: Effective excitation cross sections of alkali metals in collisions with slow electrons

SOURCE: Optika i spektroskopiya, v. 21, no. 3, 1966, 261-266

TOPIC TAGS: excitation cross section, resonance line, cesium, potassium, rubidium

ABSTRACT: A method is proposed for determining the absolute excitation cross sections of the resonance lines of atoms. It is known that the attenuation of a flux of monochromatic radiation obeys the law

$$I = I_0 e^{-\chi l} \quad (1)$$

$$\ln I = \ln I_0 - \chi l \quad (2)$$

where I_0 is the intensity of the unattenuated light flux; I is the intensity of the light flux which has covered a distance l in the absorbing gas, and χ is the attenuation factor. In a graphical representation, the intersection of straight line (2) with the vertical axis ($\ln I_0$) gives the desired value of the unattenuated flux I_0

Card 1/2

UDC: 539.184

ACC NR: AP6031952

corresponding to the value $l = 0$. Hence, the problem is reduced to the plotting of the straight curve $\ln I_p = f(l)$ in absolute units. This principle underlies the proposed method. Apparent effective excitation cross sections of the resonance lines of cesium, potassium and rubidium were measured for various thicknesses of the absorbing layer of normal atoms. The role of cascade transitions in the reinforcement of these lines was evaluated. In conclusion, authors thank S. E. Frish for useful comments pertaining to the proposed method of measurements, I. I. Garg for his assistance in setting up the apparatus, and A. K. Soshnikov and S. S. Mayerchik for their participation in the measurements. Orig. art. has: 6 figures, 1 table and 3 formulas.

SUB CODE: 20/ SUBM DATE: 13Apr65/ ORIG REF: 007/ OTH REF: 004

Card

2/2

egk

SHIMON, Pal: Master Chem Sci (diss) -- "The oxidation of alkenes in the liquid phase in the presence of boric acid". Moscow, 1958. 10 pp (Min Higher Educ USSR, Moscow Inst of Fine Chem Technology in M. V. Lomonosov, Chair of Oil-Chem Synthesis and Synthetic Liquid Fuels), 150 copies (KL, No 6, 1959, 127)

SHIMON, SHANDOR.

"Effect of Oxygen Blowing of Metal upon Removal of Sulfur in the Gaseous Phase." Min Higher Education USSR, Moscow Order of Labor Red Banner Inst of Steel imeni I. V. Stalin, Moscow, 1955.

SO: M-972, 20 Feb 56

SHIMON, Sh.; AEROSIMOV, E. V.; TRUBIN, K. G. (Prof., Dr. Tech. Sci.)

"Desulphuration at the Purging of Metal with Oxygen," in the book The Application of Radioisotopes in Metallurgy, Symposium XXXIV, Moscow; State Publishing House for Literature on Ferrous and Nonferrous Metallurgy, 1955.

Prof. K. G. TRUBIN, Dr. Tech. Sci.; Sh. SHIMON; E. V. AEROSIMOV, Chair of Steel Metallurgy, Moscow Inst. of Steel im I. V. Stalin.

SHIMON, Sh., kandidat tekhnicheskikh nauk; ABROSIMOV, Ye.V., dotsent, kandidat tekhnicheskikh nauk; TRUBIN, K.G., professor, doktor tekhnicheskikh nauk.

Removal of sulfur in the gaseous state by scavenging the metal with oxygen. Sber.Inst.stali 34:146-177 '55. (MLRA 9:7)

1.Kafedra metallurgii stali.
(Sulfur--Isotopes) (Steel--Metallurgy)

CZECHOSLOVAKIA/Human and Animal Physiology (Normal and Pathological). Nerve and Muscle Physiology.

T-11

Abs Jour : Ref Zhur - Biol., No 11, 1958, 51201

Author : Lesnyy, Ivan; Shimon, Yurity; Shimonova, Olga

Inst : -

Title : Muscle Chronaxymetry in Deformations Following Polymyositis.

Orig Pub : Chekhosl. med. obzor, 1956, 2, No 1, 32-39.

Abstract : In patients with deformations caused by disturbed strength balance of antagonistic muscles, the chronaxy of two muscle pairs was investigated. The lateral part of the deltoid muscle was examined and of the muscle pectoralis in cases of adductive impairment of the hand (in 28 patients), as well as of the tibialis anterior and of the gastrocnemius in cases of "horse foot" (in 31 patients). Muscle chronaxy of the stronger side (muscles pectoralis and gastrocnemius) proved often to be longer (in 70-73 percent of

Card 1/2

- 89 -

SHIMOKA, M.; SAKLOVSKA-SHIMONOVA, O.

hexosophosphoric ethers in acetone preparation of Mycobacterium tuberculosis H₃₇Ra and in Mycobacterium phlei. Biokhimiia 19 no.3: 295-298 My-Je 37 '54. (MLRA 7:8)

1. Laboratoriya fiziologicheskoy khimii Meditsinskoy akademii. Pol'sha, Igublin.

(MYCOBACTERIUM TUBERCULOSIS,

hexosophosphoric ether in acetone prep.)

(MYCOBACTERIUM,

phlei, hexosophosphoric ethers in acetone prep.)

POLAND/Microbiology - Medical and Veterinary
Microbiology

F-6

Abs Jour : Ref Zhur-Biologiya, No 1, 1957, 742

Author : Shimona

Inst :
Title : Formation of Pyruvic Acid in the Acetone
Preparation of Mycobacterium Tuberculosis
H37Ra.

Orig Pub : Acta Biochim. polon., 1955, 2, No 1, 3-7

Abstract : Strain H37Ra was grown on the Levenshteyn
medium. The bacterial mass after the
residue of the nutritive medium was washed
off was treated with acetone. The powder
which was obtained was suspended in a
phosphate buffer and incubated for a
period of 2 to 3 hours at a temperature
of 37° under aerobic conditions and in

Card 1/2

POLAND/Microbiology - Medical and Veterinary
Microbiology

F-6

Abs Jour : Ref Zhur-Biologiya, No 1, 1957, 742

Abstract : the presence of 0.05 M sodium lactate without the addition of methylene blue. Following the incubation and the removal of the protein, in the mixture with the help of chromatography on paper (solvent- a mixture of N-propanaol, pyridine and water in proportions of 6;2;1), pyruvic acid (1) was found. In an analogical experiment with M. phlei 1 was not found. By chromatography of the commercial preparation of 1 which served as a control, the presence of an admixture which produced an additional spot was established.

Card 2/2

POLAND/Microbiology - General Microbiology.

F-1

Abs Jour : Ref Zhur - Biologiya, No 7, 1957, 26240

Author : Shimona, M.

Inst :

Title : Phosphorylation of Glucose and Glucosamine in Acetone
Powder of Mycobacterium Phlei

Orig Pub : Byul. Pol'skoy AN, 1956, Otd. 2, 4, No 4, 123-127

Abst : No abstract.

Card 1/1

SHIMONAYEV, G. S.

Subject : USSR/Chemistry AID P - 342
Card : 1/1
Authors : Rozhkov, I. V., Shimonayev, G. S. and Kornilova, Ye. N.
Title : The effect of tetraethyl lead on the oxidation of hydrocarbons
Periodical : Neft. Khoz., v. 32, #5, 70-73, My 1954
Abstract : The result of study of oxidation of hydrocarbons of the kerosene types in liquid phase and at the presence of 0.01% of tetraethyl lead (TEL) are reported by the authors. The specimens of liquid hydrocarbons with and without TEL were placed in glass ampoules filled with air and tested at 100°C. The results indicate that TEL is a catalyst for low temperature oxidation of liquid hydrocarbons. The TEL also accelerates the decomposition of organic peroxides, which in turn accelerate decomposition of TEL and formation of deposits. 2 tables and 5 Russian references (1939-51).
Institution : None
Submitted : No date

The World State - evidence of aggression in the pre-

1945 period. The World State is a

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ROZHKOV, I.V.; SHIMOVAYEV, G.S.; KORNILOVA, Ya.N.; POTEKHIN, B.A.

Method for evaluating chemical stability of ethylated
aviation gasoline. Khim. i tekhn. topl. i masel no.1:59-
66 Ja '57. (MLRA 10:2)

1. Nauchno-issledovatel'skiy institut goryuche-smazochnykh
materialov.
(Airplanes--Fuel)

SHIRAZ, I.R. G.S.
ence of liquid tetraethyllead 7 11 Chemom 7 11

Shimonayer, G. S.

65-58-4-8/12

AUTHORS: Shimonayer, G. S., Churshakov, Ye. S., Raikova, I. V.

TITLE: The Determination of the Thermal Stability of Fuels
(Opredeleniye termicheskoy stabil'nosti topliv)

PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1958, No. 4,
pp 16 - 51 (USSR)

ABSTRACT: Fuels, used in engines, are heated in some cases to comparatively high temperatures (150° - 250°C) (Ref. 1); under such conditions insoluble deposits are formed (Refs. 2 and 3); sometimes flaky deposits occur. The thermal stability of fuels is defined as their resistance against the formation of such deposits. One of the methods for determining the thermal stability of fuels (Ref. 9) is based on the oxidation of fuels under static conditions. A new method, also based on the oxidation of fuels, in the device LSA (Ref. 10) is described. In the modified device, LSA-2, investigations can be carried out in a thermostat at 200° - 250°C. Two retorts are used, and 25 ml of the filtered fuel is poured into each. The retorts are sealed hermetically by submerging them in hot water (95°C); oxidation is carried out at 200°C for twenty minutes; then the retorts are cooled to room temperature and the contents filtered through a porous glass filter No. 4. After filtration the deposits on the

Card 1/2

The Determination of the Thermal Stability of Fuels 65-58-4-8/12

filters are washed with isopentane or petroleum ether, dried for forty-five minutes and weighed. The weight of the formed deposit is expressed in mg/100 ml of fuel. Accuracy of the results was within $\pm 0.01 - 0.2$ mg (Table 1). The deposits can be formed in the fuel due to the oxidation or polymerisation of the formed oxygen-containing compounds (Ref.3), or due to the polymerization and condensation of some compounds in the fuel. Results of experiments on kerosene in an air - nitrogen atmosphere are given in Table 2. Fig.1: the effect of temperature on the formation of deposits in kerosene for constant time of oxidation; Fig.2: the kinetics of deposit formation in kerosene at 120°, 130°, 140°, and 250°. From Fig.1, 2 and Table 2 an increase in the quantity of deposit can be observed in the initial period. After twenty-thirty minutes only small changes or even decreases can be observed. The amount of the formed deposits is only slightly affected by metals; the largest deposits are formed in the presence of steel. Physicochemical properties of various investigated fuels are given in Table 4 and results of the thermal stability of these fuels in Table 5. There are 5 Tables, 3 Figures and 11 References: 7 English and 4 Russian.

Card 2/2

1. Fuels-Stability-Temperature factors results
2. Fuels-Stability-Test results

SEMENIDO, Ye.G., prof., doktor tekhn. nauk; ENGLIN, B.A.; PAPOK, K.K.,
prof. doktor tekhn. nauk; ZARUBIN, A.P.; RAGOZIN, N.A.;
SHIMONAYEV, P.S.; CHERTKOV, Ya.B.; LIVSHITS, S.M.;
BESSMERITSIY, K.I.; LOSIKOV, B.V.; SABLINA, Z.A.; ROZHKOV, I.V.;
GUREYEV, A.A.; FAT'YANOV, A.D.; ZRELOV, V.N.; ZARUDNIY, P.P.;
BRATKOV, A.A.; BARON, I.G.; LEVINA, Ye.S., ved. red.; TITSKAYA,
R.F., ved. red.; FEDOTOVA, I.G., tekhn. red.

[Motor, jet, and rocket fuels] Motornye, reaktivnye i raketnye
topliva. 4., perer. i dop. izd. Moskva, Gos. nauchno-tekhn.
izd-vo neftianoi i gorno-toplivnoi lit-ry, 1962. 741 p.

(MIRA 15:2)

(Rockets (Aeronautics))—Fuel
(Jet propulsion)
(Motor fuels)

SHIMONAYEV, G.S.; STEPANOVA, L.S.

Polarographic method for the determination of additives boosting
the cetane number of diesel fuels. Khim.i tekhn. topl.i masel 7
no.9:67-70 S '62. (MIRA 15:8)
(Diesel fuels)

CHENNAIYAN, S.S. (M-104)

Mean isobaric heat capacity of solid hydrocarbons as dependent
on the molecular volume and melting points. Zhur. fiz. khim.
38 no.3:411-414, 1964. (MIRA 17:8)

12-11-1965 11:16 1120 541.11

12-11-1965 11:16 1120 541.11

AUTHOR: Shimonayev, G. S.

35
8 7

TITLE: Effect of molecular volume and boiling point on the average specific heat of liquid hydrocarbons.

12-11-1965 11:16 1120 541.11

12-11-1965 11:16 1120 541.11

ABSTRACT: Since the modern theory of the liquid state does not permit a theoretical calculation of the physical properties of liquids, it is necessary to develop simple semiempirical and empirical methods of calculation. Such a method is proposed for determining the relationship between the average specific heat at constant pressure $\bar{C}_{p,liq}$, the molecular volume V_{bp} and boiling point T_{bp} of liquid

hydrocarbons. The following equation was derived:

$$\bar{C}_{p,liq} = 0.00061 \left(\gamma_{liq} \frac{M}{n} \cdot T_{bp} \cdot V_{bp}^{2/3} \right)^{0.95}$$

Card 1/2

100-11-

ACCESSION NR AP5013523

Values calculated from this equation were found to be in good agreement with experimental ones for liquid hydrocarbons belonging to various homologous series. Maximum discrepancies did not exceed 3%. Assuming that the accuracy of the measurement of the boiling point and density of the hydrocarbons (at the boiling point) is $\pm 0.2\%$, the relative error is $\pm 0.3\%$. The main error in the equation is introduced by the approximate values of the coefficient γ_{liq} , which takes into account the structural differences of the molecules and the related differences in the contribution to the heat capacity due to the rotational motion of the CH_3 groups. Values of γ_{liq} for various structures and the experimental and calculated values of γ_{liq} are tabulated. Orig. art. has: 1 figure, 2 tables, and 3 formulas.

ACCESSION NR

100-11-

ENTR

SUB CODE: GC

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ENTR

Card 2/2

L 10519-66 EWT(1)/EWI(m)/ETC/ENG(m)/EWP(j)/ETC(m)
ACC NR: AP5027178

RPL W/W/W/W

SOURCE CODE: UR/0076/63/039/010/2526/2529

AUTHOR: Shimonayev, G. S.

ORG: None

TITLE: Enthalpy of sublimation of n- and iso-alkanes at 0 deg K

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 10, 1965, 2526-2529

TOPIC TAGS: enthalpy, sublimation, alkane, thermodynamic calculation, heat of fusion, heat of vaporization, allotropic transformation

ABSTRACT: The author computed the enthalpy of sublimation λ_0 at 0°K from the equation of E. Whalley and W. G. Schneider (J. Chem. Phys. 23, 1644, 1955):

$$\lambda_0 = \int_0^{T_{tr}} \frac{S_1}{C_p} dT + \lambda_{tr} + \int_{T_{tr}}^{T_m} \frac{S_2}{C_p} dT + \lambda_m + \int_{T_m}^{T_b} \frac{1}{C_p} dT + \lambda_{vap} + \Delta H_j - \int_0^{T_b} C_p^o dT,$$

where λ_{tr} , λ_m , and λ_{vap} are, respectively, the heat of allotropic transition, heat of fusion, and heat of vaporization, cal/mole; ΔH_j is the amount of heat required to change 1 mole of vaporized substance to the ideal gas state, and

$$\int_0^{T_b} C_p^o dT$$

is the amount of heat required to heat the substance in the hypothetical ideal gas

Card 1/2

UDC: 541.11+541.6

L 10519-66

ACC NR: AP5027178

state from 0°K to the boiling point. Values of λ_0 for n- and iso-alkanes were obtained. It was found that λ_0 is determined by the chemical structure of the molecule and by the number of carbon atoms in the latter. For alkanes with the same number of carbon atoms, λ_0 decreases in the series: n-alkanes with an even number of carbon atoms, n-alkanes with an odd number of carbon atoms, 2-methylalkanes, 3,3-dimethyl alkanes, 2,2-dimethylalkanes. As a rule, iso-alkanes have substantially smaller values of λ_0 than n-alkanes, and this difference increases with the number of carbon atoms. Orig. art. has: 1 figure, 1 table, and 7 formulas.

SUB CODE: 074/ SUBM DATE: 06Aug64 / ORIG REF: 006 / OTH REF: 006

gc
Card 2/2

SHIMONAYEVA, Ye. Ye., Cand Biol Sci -- (diss) "Comparative Study of the Properties of Thrombotropin, AC-Globulin and Factor VII." Mos, 1957. 19 pp with graphs (Mos Order of Lenin and Order of Labor Red Banner State Univ im M. V. Lomonosov), 110 copies (KL, 49-57, 112)

- 26 -

KUDRYASHOV, B.A., prof.; ANDREYENKO, G.V.; ULITINA, P.D.; BAZAS'YAN, G.G.;
PASTOROVA, V.Ye.; SYTINA, N.P.; KALISHEVSKAYA, T.M.; SHIMONAYEVA, Ye.Ye.

Nature of hemorrhage in experimental radiation sickness in animals
[with summary in English, p.60]. Probl.gemat. i perel.krovi 2 no.6:
3-11 N-D '57. (MIRA 11:2)

1. Iz biologo-pochvennogo fakul'teta Moskovskogo gosudarstvennogo
universiteta.

(HEMORRHAGE, experimental,
x-ray induced in animals (Rus))
(ROENTGEN RAYS, injurious effects,
exper. hemorrh. induced in animals (Rus))

Shimonayeva, Ye. Ye.

AUTHOR

Shimonayeva, Ye. Ye.

20-3-42/59

TITLE

A Comparative Study of the Properties of Thrombotropine, As-globuline and of the Factor VII. (Sravnitel'noye izucheniye svoystv trombotropina, As-globulina i faktora VII).

PERIODICAL

Doklady Akademii Nauk, 1957, Vol. 115, Nr 3, pp. 572 - 575 (USSR.).

ABSTRACT

In a series of papers the existence of components in human and animal blood is indicated, which accelerate the transition from prothrombine into thrombine. It is established, that the so-called thrombotropine takes part in the natural process of blood coagulation, transforming the inactive prothrombokinase into its active form - thrombokinase. Independent from this the two other factors mentioned in the title are described. They also take part in the formation of thromboplastin. All three substances mentioned in the title have many common properties. It can be supposed, that they are identical, although, on the other hand, they differ in some respects. This problem has remained obscure, and the present paper had as its object to prove their identity or their distinctness. White rats served as test animals.

1. Investigation of the three substances in the case of radiation

sickness. From fig. 2 it can be seen, that on the 7 - 8th day after the irradiation the concentration of the factor VII and to some extent also the content of as-globuline decreased. Thrombotropin remained stationary.

Card 1/3

On the 9 - 10th day the factor VII decreased further, and as-globuline

20-3-42/59

A Comparative Study of the Properties of Thrombotropine,
As-globuline and of the Factor VII.

SUBMITTED November 21, 1956.

AVAILABLE Library of Congress.

Card 3/3

HUNGARY / Analytical Chemistry. Organic Analysis.

E

Abs Jour: Ref Zhur-Khimiya, No 16, 1958, 53515.

Abstract: In the range of 5-25 μ /ml of III the intensity is proportional to the concentration. At room temperature the MI is reached after 15 minutes, at 70-75°C - after 60 minutes. If water is present in the alcohol at >0.5-0.6% the results are even worse. In a benzene medium and a high temperature a quantitative determination is not feasible. The salicylic acid esters(IV) produce a violet F in an absolute ethanol medium, the intensity being proportional to the concentration, in the range of 0.60-3.0 μ /ml of IV. The MI is reached after 15 minutes. Heating does not interfere. The appearance of F is explained through the formation

Card 2/3

HUNGARY / Analytical Chemistry. Organic Analysis.

E

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510015-0

Abs Jour: Ref Zhur-Khimiya, No 16, 1958, 53515.

Abstract: of Al complexes of II, III, and IV. III may be determined in the presence of acetylsalicylic acid because in the latter the OH group is absent which is necessary for complex formation. For an amide of salicylic acid there is no relationship between its concentration and the F intensity. The probable error is + 3%. I was used as a 3.5% solution in absolute ethanol.

Card 3/3

SHIMONIK, A. / 1924. (g.Brno, Cheskoslovakiya)

Use of carriers in dyeing polyester fibers. Tekst. prom. 21 no.1:77-79
Ja '61. (MIRA 14:3)

(Dyes and dyeing--Textile fibers)

MARSA, Irzhi [Marsa, Jiri], doktor meditsiny; SHIMSHOVA, I., doktor meditsiny; VONKEOVA, N., doktor meditsiny

Epidemic hepatitis and pregnancy. Vop.med.virus. no.9:240-242
'61. (MIRA 18:4)

1. Otdeleniye infektsionnykh bolezney oblastnoy bol'nitsy v
- b. Cheske Budevitse - zav. otdeleniyem doktor meditsiny Irzhi
- Marsa, Chekhoslovatskaya Sotsialisticheskaya Respublika.

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510015-0

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510015-0"

CZECHOSLOVAKIA/Human and Animal Physiology (Normal and
Pathological). Nerve and Muscle Physiology.

T-11

Abs Jour : Ref Zhur - Biol., No 11, 1958, 51201

Author : Lesnyy, Ivan; Shimon, Yurity; Shimonova, Olga

Inst : -

Title : Muscle Chronaxymetry in Deformations Following Polyarthritis.

Orig Pub : Chekhosl. med. obzor, 1956, 2, No 1, 32-39.

Abstract : In patients with deformations caused by disturbed strength balance of antagonistic muscles, the chronaxy of two muscle pairs was investigated. The lateral part of the deltoid muscle was examined and of the muscle pectoralis in cases of adductive impairment of the hand (in 28 patients), as well as of the tibialis anterior and of the gastrocnemius in cases of "horse foot" (in 31 patients). Muscle chronaxy of the stronger side (muscles pectoralis and gastrocnemius) proved often to be longer (in 70-73 percent of

Card 1/2

- 89 -

SHIMONOVICH, Ishtvan, doktor

Public health in the Hungarian People's Republic. Sov.zdrav. 17
no.2:5-12 F '58. (MIRA 13:1)

1. Zamestitel' ministra zdavookhraneniya Vengerskoy Narodnoy Res-
publiki.

(PUBLIC HEALTH
in Hungary (Rus))

SHIMONOVICH, I. doktor (Budapesht)

Policy of the Hungarian People's Republic in the field of public
health. Sov. zdrav. 19 no. 4:70-76 '60. (MIRA 13:10)
(HUNGARY--PUBLIC HEALTH)

ZIMKIN, Ye. A.; SHIMORINA, A.F.

Fatty impurities in photographic gelatin. Zhur.nauch.i prikl.
fot.i kin. 5 no.1:57-58 Ja-F '60. (MIRA 13:5)

1. Filial nauchno-issledovatel'skogo kinofotoinstituta i
Fotozhelatinovyy zavod, Kazan'.
(Gelatin--Analysis)
(Photographic emulsions)

SHIMOV, I. Engr.Col.

"The Development of Infantry Weapons," Krasnaya Zvezda, 9 Dec 55

Translated excerpts - Sum. No. 850, 12 Mar 56

SHINOV, I., Eng. Col.

"Development of Small Armament," from the book, Modern Military Technology, 1956,
page 54.

Translation 1114505

SHIMOV, I. Eng. Col.

"Recoilless Guns," from the book Modern Military Technology, 1956, page 69.

Translation 1114505

Shinoy, V. N., Prof.

Nervous System - Surgery

Twenty-five years of activity of the Leningrad Institute of Neurosurgery and problems facing it in organizing neurosurgical service in the R.S.F.S.R., Vop. neirokhir., 16, No. 2, 1951.

Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

1. 1. 1. 1. 1.

Role of a slowly reacting substance in the mechanism of an
anaphylactic bronchospasm. Vest. AN SSSR 19 no.10:16-25 '67.
(MFM. 18:3).

1. Kafein, patofizicheskoy fiziologii II Moskovskogo meditsin-
skogo instituta imeni Pirogova.

VONESH, F. [Vones, F.]; PODRAZKI, V. [Podrazky, V.]; SHIMOVA, Ya.
[Simova, J.]; VISELI, Z. [Vesely, Z.]

Some changes occurring in the protein complex of rye endosperm
during the germination of the kernel and flour heating.
Biokhim. zer. i khlebopech. no.7:151-158 '64. (MIRA 17:9)

1. Tsentral'nyy issledovatel'skiy institut pishchevoy
promyshlennosti, Praga.

SHIMOVSKIY, L.M.; DUNINA, A.A.; GOSTEVA, M.I.

Mechanism underlying recombination luminescence in $\text{NaCl}(\text{In}^{3+})$
phosphor. Opt. i spektr. 18 no.6:1011-1018 Je '65.

(MIRA 18:12)

KOTOVSKAYA, A.R.; VASIL'YEV, P.V.; LAPIN, B.A.; SIMPURA, S.F.; SHAKHILANOV, V.;
ARTEM'YEVA, N.S.

Effect of transverse stresses on the organism of female
monkeys. Probl. kosm. biol. 4:322-332 '65. (MIRA 18:9)

KOTOVSKAYA, A.R.; KAKURIN, L.I., KONNOVA, N.I.; SIMPURA, S.F.; GRISHINA, I.S.

Effect of prolonged hypokinesia on the human resistance to stresses. Probl. kosm. biol. 4:333-342 '65. (MCRA 13:9)

SHUMSHILEVICH, B. Ya.

DECEASED 1956

Medicine

see ILC

USSR/Medicine - Influenza, Forms Mar/Apr 49
Medicine - Epidemiology

"Characteristics of Two Influenza Epidemics,"
S. B. Shlismolevich, O. P. Peterson, F. V.
Smolyanskaya, Clinical Inst of Virology, Acad
Med Sci USSR, at Children's Home No 27, 6 pp

"Pediatrya" No 2

Studied two outbreaks of epidemic influenza in
same group of children of preschool age.
Epidemiological study of both outbreaks in-
dicated that type A influenza virus was more
virulent than type B. Observed catarrhal

LC 41/4978

USSR/Medicine - Influenza, Forms Mar/Apr 49
(Contd)

phenomena less often in type B. Irritation of
sympathetic nervous system occurred more often
in type A.

LC

41/4978

EPHSHTeyN, F. G.: SHIMSHELEVICH, S.B.

On the frequent recurrence of "grippe". Klin. med., Moskva
29 no.7:76-78 July 1951. (CML 20:11)

1. Prof. Epshteyn. 2. Of the Experimental Clinical Division
(Head -- Prof. F. G. Epshteyn), Institute of Virology
(Director -- Prof. A. T. Kravchenko), Academy of Medical
Sciences USSR, Moscow.

SHRISHELEWICH, Ya. B.

^{Reaction}
"The Reduction of Oxygen on a Mercury Electrode," Zhur. Fiz. Khim, 23, No. 2, 1949.
Mor. Chair Electrochemistry, Moscow Order Lenin State Univ., in. M. V. Lomonosov,
-clp49-.

SHIMSHILASHVILI, R.F.

Means for increasing labor productivity in the transportation of
mail. Vest.sviazi 20 no.2:27-28 F '60.

(MIRA 13:5)

1. Chlen kollegii Ministerstva Gruzinskoy SSR.
(Postal service)

SHIMUYAS, S.P.; KURDENKOV, B.I.

Wear resistance of rubble and the roughness of pavements. Avt.dor.
27 no.12:15-17 D '64. (MIRA 18:2)

SHIMULIS, V.I.; YAGODOVSKIY, V.D.; GRYAZNOV, V.M.

Spectroscopic study of isomerization kinetics of allylbenzene on
palladium film. Vest. Mosk. un. Ser.mat.mekh. astron.fiz. khim. 12
no.4:237-249 '57. (MIRA 11:5)

1.Laboratoriya molekulyarnoy spektroskopii Moskovskogo gosudarstvennogo
universiteta.

(Benzene--Spectra) (Palladium)

AUTHORS: Gryaznov, V. M., Yagodovskiy, V. D., SOV/48-22-9-36/40
Shizulis, V. I.

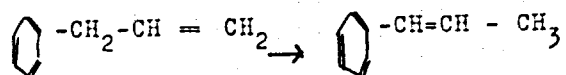
TITLE: Methods of Spectroscopic Investigation of Catalytic Transformations on Metal Films (Spektroskopicheskiye metody issledovaniya kataliticheskikh prevrashcheniy na plenkakh metallov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1136 - 1140 (USSR)

ABSTRACT: Metal films prepared under a high vacuum differ from catalysts obtained by other methods by the high purity of their surface. Nevertheless the catalytic activity of such films is comparatively low. In the course of time it also disappears at higher temperatures. In order to determine in a rapid manner the extent of the reactions catalyzed by these films the authors employed optical cuvettes. It is possible to apply a film to their walls and windows in vacuo. The time course of the isomerization process of allyl benzene into propenyl benzene

Card 1/4

Methods of Spectroscopic Investigation of Catalytic Transformations on Metal Films SOV/48-22-9-36/40



on palladium films was studied with the help of ultraviolet absorption spectra. The palladium films were sublimated in a vacuum of $1 \cdot 10^{-6}$ torr on the interior walls of a seamless fused quartz cuvette with a length of 150 mm. The cuvette was furnished with windows 1 and 1' with a diameter of 40 mm (Fig 1). The mirror monochromator ZMR-2 with a photoelectric recorder was used for the recording of the absorption spectra of allyl benzene and of propenyl benzene. The accurate method employed and the results achieved were published already in reference 1. The transformation of 1,3 cyclo hexadiene into benzene and cyclohexene even at room temperature proceeds within a few minutes. The transformations of cyclohexene into benzene and cyclohexane proceeds much slower. The transformations of cyclohexadiene on transparent palladium films with a thickness of the order of 100 Å were also investigated. The films were applied directly to the

Card 2/4

Methods of Spectroscopic Investigation of Catalytic
Transformations on Metal Films

SOV/48-22-9-36/40

windows of the seamless fused quartz cuvette. The absorption of ultraviolet radiation by the benzene which is contained in the vapors and in the layers absorbed on the cuvette windows was measurable with a cuvette length of 16 mm. The absorption spectra of benzene obtained under the conditions described were compared with those obtained from a thicker vapor layer. The DFS-3 diffraction spectrograph with a dispersion of 2 \AA mm^{-1} and a theoretical resolution of 144 000 was used. 52 absorption bands were observed with a absorbing layer with a thickness of 170 nm and a benzene vapor pressure of 0,1 torr. The half width of most of the absorption bands did hardly differ from those obtained from iron arc. Apart from the extinction coefficient of the benzene absorbed on the Pd-film only small differences in the shape were observed in a comparison with the benzene absorbed on the quartz windows. This effect requires further investigation. The authors acknowledge valuable suggestions given by V.M.Tatevskiy.

Card 3/4

Methods of Spectroscopic Investigation of Catalytic Transformations on Metal Films SOV/48-22-9-36/40

There are 2 figures, 1 table, and 3 references, 1 of which is Soviet.

ASSOCIATION: Laboratoriya molekulyarnoy spektroskopii Khimicheskogo fakul'teta Moskovskogo gos. universiteta im.M.V.Lomonosova (Laboratory of Molecular Spectroscopy at the Chemistry Department of the Moscow State University imeni M.V. Lomonosov)

Card 4/4

SHIMULIS, V.I.; GRYAZNOV, V.M.; CHERKASHIN, A. Ye.

Kinetics of the high-temperature isomerization of allylbenzene
on platinum films. Kin. i kat. 1 no. 3:401-407 8-0 '60.
(MIRA 13:11)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo
universiteta.

(Benzene) (Isomerization) (Platinum)

S/020/60/132/05/44/069
B004/B011

5.1190
AUTHORS:

Gryaznov, V. M., Shimulis, V. I., Yagodovskiy, V. D.

TITLE:

Influence of Adsorption of Benzene Vapor on the Electrical Conductivity of Transparent Platinum Films of Various Surface Density

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5, pp. 1132-1135

TEXT: The paper under review was submitted to the Konferentsiya po organicheskomu katalizu (Conference on Organic Catalysis), Moscow, November 1959. The authors investigated the influence of adsorption of benzene vapor at 20°C on the electrical conductivity of platinum films that were prepared by evaporating metals at $1 \cdot 10^{-7}$ torr onto the walls of a glass cell. The benzene vapor was led through at a constant rate of $(3.8 \pm 0.3) \cdot 10^{14}$ molecules per minute. The conductivity of all films dropped with rising stable adsorption of the benzene vapor. Fig. 1 shows, however, that the films behaved differently depending on their thickness

Card 1/3

Influence of Adsorption of Benzene Vapor on the Electrical Conductivity of Transparent Platinum Films of Various Surface Density S/020/60/132/05/44/069
B004/B011

(10-50 A). In order to test the dependence of the conductivity of differently dense films on the amount of stably adsorbed benzene, experiments were conducted the results of which are given in Table 1. The authors found that the structure of the films is greatly dependent on difficultly controllable circumstances in their production. At any rate, a linear segment is shown for each film in the diagram: conductivity - number of adsorbed C_6H_6 molecules. The authors assume that the linear dependence reproduces only average values, and that at $20^\circ C$ the benzene adsorption takes place in centers with different adsorption potential. They conducted experiments in which the contact wires were connected only to the upper part of the platinum film, while the benzene vapor was let into the cell either from top or from bottom (Fig. 3). The authors conclude from the results obtained that in the sections of the film where benzene is introduced there occurs both a stable and a reversible adsorption before the stable adsorption begins at the remoter film sections, and later there occurs a rearrangement of the adsorbed molecules. Under experimental conditions, the rearrangement required about 10 minutes.

Card 2/3

Influence of Adsorption of Benzene Vapor on the S/020/60/132/05/44/069
Electrical Conductivity of Transparent Platinum B004/B011
Films of Various Surface Density

There are 3 figures, 1 table, and 11 references: 3 Soviet, 1 Belgian,
1 British, and 6 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 4, 1960, by M. M. Dubinin, Academician

SUBMITTED: January 30, 1960

4

Card 3/3

SHIMULIS, V. I.

Cond Chem Sci - (russ) "Investigation of adsorption and catalytic changes of several hydrocarbons on platinum." Moscow, 1961.
17 pp; (Moscow State Univ imeni M. V. Lomonosov, Chemistry Faculty);
200 copies; price not given; (KL, 5-61 sup, 178)

24 2130

30341
S/189/61/000/006/002/005
D228/D304

AUTHORS: Gryaznov, V.M. and Shimulis, V.I.
TITLE: Influence of the sorption of hydrogen on the
electroconductivity of transparent films of
platinum
PERIODICAL: Moscow. Universitet. Vestnik. Seriya II. Khimiya,
no. 6, 1961, 25-27

TEXT: In studying this question the authors used the method
involving 1 - 3 successive flows of hydrogen through a capil-
lary at 20°. Three transparent films of platinum - with a sur-
face density of $2.0 \sim 3.5 \times 10^{16}$ atoms/cm² - were prepared on
the glass partitions of a cell. The sorption pressure was mea-
sured by a calibrated ЛТ-2 (LT-2) lamp whose e.m.f. was recor-
ded on an ЭНН-09 (LPP-09) potentiometer. The maximum amounts
of sorbed hydrogen, calculated from sorption-isotherm diagrams,
Card 1/2

Influence of the sorption ...

30341
S/189/61/000/006/002/005
D228/D304

equalled $7-12 \times 10^{16}$ mol.; the authors' data appear to confirm those of E.N. Kartaradze (Ref. 3: Dokl. AN SSSR, 114, 822, 1957) concerning the fact that hydrogen is both stably and reversibly adsorbed. The results of another test with the additional admission of cyclohexane vapors suggest that stably adsorbed hydrocarbon strongly decreases the sorption of hydrogen. Intermittent rises in the resistance of one of the films, which were very pronounced at the beginning of the experiment with a single application of hydrogen, may be related to changes in the film's structure in consequence of the solution of hydrogen. Apart from these, however, the film's electroresistance smoothly decreases with increasing time, especially in the case of three successive applications of hydrogen. There are 2 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Kafedra fizicheskoy khimii. (Department of Physical Chemistry)

SUBMITTED: November 2, 1960

Card 2/2

SHIMULIS, V.I.; GRAYAZNOV, V.M.; CHERKASHIN, A.Ye.

Kinetics of the isomerization of allylbenzene in the presence of
incandescent platinum, palladium, and tungsten wires. Kin. i kat. 2
no.1:127-134 Ja-F '61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova,
Khimicheskiy fakul'tet.
(Benzene) (Catalysts)(Isomerization)

GRYAZNOV, V.M.; YAGODOVSKIY, V.D.; SHIMULIS, V.I.

Effect of thermal treatment on the catalytic properties of a
platinum film. Kin. i kat. 2 no.2:221-227 Mr-Ap '61. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet, khimicheskiy fakul'tet.
(Platinum) (Catalysts)

GRYAZNOV, V.M.; SHIMULIS, V.J.

Interaction between benzene vapors and platinum films. Kin.i kat.
2 no.4:534-537 JI-Ag '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova,
Khimicheskiy fakul'tet.
(Benzene) (Platinum) (Adsorption)

GRYAZNOV, V.M.; SHIMULIS, V.I.

Catalytic dehydrogenation of cyclohexene and 1,3-cyclohexadiene
on platinum films at 20°. Kin.i kat. 2 no.6:894-899 N-D '61.

(MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova,
khimicheskoy fakul'tet.

(Cyclohexene)

(Cyclohexadiene)

(Dehydrogenation)

GRYAZNOV, V.M.; SHIMULIS, V.I.

Effect of hydrogen sorption on the electric conductivity of transparent platinum films. Vest.Mosk.Un.Ser.2: khim. 16 no.6:25-27 M-D '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet. Kafedra fizicheskoy khimii.

(Platinum--Electric properties)

(Hydrogen)

SHIMULIS, V.I.; GRYAZNOV, V.M. (Moskva)

Improved method of studying adsorption on substances with small specific surface areas. Zhur. fiz. khim. 35 no. 4:942-945 Ap '61.

(MIRA 14:5)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni M.V. Lomonosova.

(Adsorption)

20358

S/020/61/136/005/016/032
B103/B208

5.1190

2209 1208 1274

AUTHORS:

Gryaznov, V. M., Shimulis, V. I., and Yagodovskiy, V. D.

TITLE:

Dependence of catalytic properties of metals on the degree of approach of their surface state to equilibrium

PERIODICAL:

Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1086-1089

TEXT: In the introduction, the authors discuss the thermodynamic conditions of equilibrium of the active centers with the crystal lattice in metal catalysts, basing on the data of O. M. Poltorak, Refs. 4, 5; and Refs. 1, 3, 6. From their own studies and these data they came to the conclusion that a study of the kinetics of catalytic reactions in a wide temperature range permits conclusions as to the degree of equilibrium attained between the active centers and the crystal lattice of the catalyst. The influence of thermal treatment upon activity and selective effect of the catalyst may be explained on the basis of these data. If the assumptions of the authors are correct, the afore-mentioned kinetics may be used to clarify the influence of temperature and preceding thermal treatment. Particularly, at temperatures which do not give rise to an

Card 1/4

20358

S/020/61/136/005/016/032
B103/B208

Dependence of catalytic properties ...

equilibrium concentration of the active centers, the degree of approach to this concentration must be mainly dependent on the cooling rate of the catalyst at elevated temperature. After quick cooling (quenching) of the catalyst the concentration of the active centers will deviate from equilibrium concentration more strongly than after slow cooling. In the case of catalytic activity of atomic structures consisting of an unequal quantity of atoms, the rates of establishing equilibrium will differ with increasing temperature; the activation energy of this process will increase from simple centers to more complicated ones. In this way, first the equilibrium concentrations of the simpler centers will be attained, and then those of the more complicated ones. The selective effect of the catalyst depends on this changed concentration of different centers. The expected effects were confirmed by the authors' experiments. Cyclohexene was dehydrogenated to benzene on a platinum film heated only up to 500°C. On a platinum film heated to 700°C in high vacuum the conversion of cyclohexene sets in only beyond 450°C, giving cyclohexadiene-1,3. Therefrom, the authors conclude that dehydrogenation to benzene takes place on more complicated centers which are less stable

Card 2/4

20358

S/020/61/136/005/016/032
B103/B208

Dependence of catalytic properties ...

in thermodynamic respects up to 700°C, than those yielding cyclohexadiene. The authors conclude from the fact that these more complicated centers are conserved at 500°C that the activation energy of their destruction is high. It was shown in two experimental series that the activation energy of cyclohexadiene formation between 520 and 600°C is, accordingly, 60 kcal/mole. At lower temperatures, the activity of the catalyst decreased. In the third experimental series it was 60 kcal/mole in the entire range of 450-600°C. This indicates that in this case the equilibrium concentration was attained. After quenching the film (cooling from 700 to 460°C within 4 min) the activation energy dropped to 26 kcal/mole, while the activity of the film rapidly increased. On the other hand, these values remained unchanged in the range of higher temperatures. The authors point out that the difference of the activation energies obtained, $60 - 26 = 34$ kcal/mole, was the same as in the isomerization of allyl benzene on platinum films (Ref. 1). The authors assume therefore that the two reactions proceed on active centers in an equilibrium of the same type. If the centers out of equilibrium which are formed after quenching or in the course of the synthesis of the catalyst are of the

Card 3/4

Dependence of catalytic properties ...

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B103/B208

same type as those being in equilibrium with the lattice of the catalyst, the formation heat of the latter may be determined by formula (8) (Ref. 2) from the difference of the activation energies obtained on the two types of centers (in equilibrium and out of equilibrium). Finally, the authors give the data obtained by other scientists (N. D. Zelinskiy and G. S. Pavlov, Ref. 8; B. V. Yerofeyev and N. V. Nikiforova, Ref. 9), which confirm their own results. There are 11 references: 9 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: September 17, 1960, by A. A. Balandin, Academician

SUBMITTED: September 16, 1960

Card 4/4

SHIMULIS, V.I.; GRYAZNOV, V.M.

Mobility of atoms at a crystal surface at the fusion temperature.
Dokl. AN SSSR 137 no.3:648-651 Mr '61. (MIRA 14:2)

1. Moskovskiy gosudarstvennyy universitet im.M.V.Lomonosova. Pred-
stavleno akademikom M.M.Dubininym. (Metal crystals) (Adsorption)

GRYAZNOV, V.M.; SHIMULIS, V.I.

Mechanism of cyclohexene and 1,3-cyclohexadiene transformations on
platinum films. Dokl. AN SSSR 139 no.4:870-873 Ag '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom A.A. Balandinym.
(Cyclohexene) (Cyclohexadiene)

GRYAZNOV, V.M.; YAGODOVSKIY, V.D.; SAVEL'YEVA, Ye.A.; SHIMULIS, V.I.

Different catalytic activities of platinum and palladium in
cyclohexene and cyclohexadiene conversions. Kin.i kat. 3
no.1:99-102 '62. (MIRA 15:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova,
khimicheskii fakul'tet.
(Cyclohexene) (Cyclohexadiene) (Catalysis)

GRYAZNOV, V.M.; SHIMULIS, V.I.; DILINGEROVA, T.V.

Adsorption and dehydrogenation of cyclohexane on platinum films
at room temperature. Vest.Mosk.un.Ser.2: Khim. 17 no.2:26-28
Mr-Apr '62. (MIRA 15:4)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Cyclohexane) (Adsorption) (Dehydrogenation)

2
GRYAZNOV, V. M.; SHIMULIS, V. I.; YAGODOVSKIY, V. D.

"About mechanism of catalytic conversions and strong adsorption of unsaturated cyclic hydrocarbons on platinum and palladium."

report submitted to 3rd Intl Cong on Catalysis, Amsterdam, 20-25 Jul 64.

Patrice Lumumba Peoples' Friendship Univ, Moscow.

SHIMULIS, V.I.; ZEMANEK, F.

Kinetics of cyclohexene dehydrogenation on a palladium film.

Part 1: Localized adsorption. Kin. i kat. 5 no.5:898-902

S-O '64.

(MIRA 17:12)

1. Universitet druzhby narodov imeni Patrisa Lumumby.

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AUTHORS:

Tolutis, V.B. and Shimulite, Ye.A.

TITLE:

Combined investigation of thin layers of cadmium telluride. II. Electrical conductivity in weak electric fields and contact phenomena

SOURCE:

Akademiya nauk Litovskoy SSR. Trudy. Seriya B, no. 1(28), 1962, 33-50

TEXT:

This paper is a continuation of the combined investigation of thin layers of cadmium telluride (see Part I). Electrical properties were measured on layers of stoichiometric composition, as well as on layers with an excess of tellurium or cadmium. The excess of tellurium was produced by heating in high vacuum, the excess of cadmium - by heating in saturated cadmium vapor or by the Vekshinskiy method. The treatment in saturated cadmium vapor was carried out by R. Valatska and V. Yasutis. The temperature dependence of the electrical conductivity was found in high vacuum using probes and the electrometer circuit. Measurements at low temperatures were limited by the fact that the resistance rose rapidly: at -40°C the

Card 1/3

Combined investigation ...

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D207/D307

resistance reached $10^{13} - 10^{14}$ ohm. The rectilinear $\log \sigma = f(1/T)$ characteristics (σ is the electrical conductivity and T is the temperature) were strongly altered by heating to 450°C because such heating changed the concentration of impurity centers. The high-temperature variations in the impurity-center concentration were due to cadmium which can easily leave its lattice site because of its low activation energy and small radius. The complex mechanism of carrier recombination was due to the instability of the concentration of recombination centers which were produced by secondary thermal ionization of cadmium vacancies of interstitial cadmium atoms; the interaction between volume and surface processes also affected carrier recombination. The activation energies of the impurity centers and the forbidden band width (~ 1.5 eV) of the layers agreed well with the values for monocrystals. Contact phenomena were investigated by: 1) recording current-voltage characteristics, 2) studying the potential distribution across the sample by means of a moving probe, or 3) measuring the noise level. It was found that satisfactory ohmic contacts with p-type layers were obtained using gold, silver and antimony electrodes. Gold electrodes which were

Card 2/3

Combined investigation ...

S/236/62/000/001/003/007
D207/D307

not heat-treated formed ohmic contacts with n-type layers; heating destroyed the ohmic nature of these contacts. Indium electrodes on n-type layers were ohmic, but on p-type they had rectifying properties. The ohmic nature of indium contacts on n-type layers was retained after heating; aluminum electrodes had properties similar to those of indium. The lowest contact noise was obtained with ohmic indium electrodes. The contact phenomena could all be explained within the framework of the usual contact theory by taking into account the specific properties of CdTe layers. There are 10 figures and 1 table.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Institute of Physics and Mathematics, Academy of Sciences, LithSSR)

SUBMITTED: February 23, 1961

Card 3/3

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1. 10000-11 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) GG/RDW/JD

ABSTRACT: The article considers the characteristics of the growth of CdTe films when the alloying of the film is carried out by the independent evaporation of CdTe and copper. The purpose of this work was to determine the dependence of the film structure on the concentration of the introduced copper, and to determine the limiting active concentration of copper in the CdTe film. The study was carried out by means of electron microscopy and optical investigations of the CdTe films. The structure of the film obtained at different substratum tem-

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peratures was investigated as a function of the concentration of copper ranging from 10^{15} to 10^{21} cm⁻³. It was established that the layers obtained on a cold substrate at low temperature are greatly disordered and have no pronounced structure. With increasing concentration of copper their visible substructure is more pronounced. The films obtained on substrata heated to 150 and 250°C have a pronounced structure. As the temperature increases the crystal size also increases. It was found that structure size increases at high concentrations of Cu. It was also established that the limiting concentration of active copper does not exceed 10^{18} cm⁻³. It was found that the impurities are concentrated predominantly on the surface of the film. The structure was investigated by A. P. Bekasov.

Author: A. P. Bekasov, Fizmatlit, Akademiya Nauk Litovskoy SSR, Physics and Chemistry of Solids, Academy of Sciences of the Lithuanian SSR

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